

South African Thysanoptera — I

by

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Suborder **TUBULIFERA**

Family **PHLAEOTHIRIPIDAE**.

Gastrothrips hoodi spec. nov. (Figs 1-3)

Female (macropterous and deålated). Length (distended) 1.7 to 1.9 mm.

Colour: general colour brown to black; head uniformly light brown to brown, very narrow basal collar dark brown; underlying pigment of eyes and ocelli dark red to black; mouth-cone dark brown at tip; antennae: iii and vi yellowish-grey, very lightly tinged with brown; i, iv and v slightly darker, pale yellowish brown but iv usually slightly darker than the other two; ii largely like iii but brown in basal fifth; vii and viii light brown; thorax and first three or four segments of abdomen brown, slightly darker than head or concolorous with it; rest of abdomen brown to black, becoming darker caudad; tube black; legs light brown except extreme tips of femora, extreme bases and tips of tibiae, and whole of all tarsi which are pale, yellow to yellowish brown; fore-wings grey throughout, scale and part opposite it brownish-grey, and a median longitudinal line also darker; hind wings paler grey; fringes grey; all major body setae dark, brownish grey.

Sculpturing not prominent: head with fine ridges giving a roughened appearance on either side of the anterior ocellus; head thorax and legs very weakly, abdomen more strongly sculptured with feint anastomosing lines which form reticulations, especially on the lateral parts of the abdominal tergites; surface of fore-wings roughened in distal half; tube with about a dozen longitudinal ridges in basal half.

Head wider than long, the length about 0.9 of the greatest width, which is on a line drawn through the postoculars; distinctly constricted at base, the greatest width 1.2-1.4 the least width at base; the width across eyes 1.1-1.3 the least width at base. Postoculars pointed, 44-68 long, situated 12-17 from the eyes, their interval 147-156 μ . Second postoculars and post-ocellars weak, about 16-24 μ long.

Eyes prominent, closely faceted, with two large ommatidia at postero-lateral angles, not attaining sides of head; their dorsal length 52-56, ventral length 48-52, dorsal width 52-58, dorsal interval 92-100, ventral interval

105-108 μ . Ocelli: borne on a slightly raised hump, distance between posterior pair 60-64, between these and anterior 24-32 μ ; longitudinal diameter of posterior pair 14-16 μ . Mouth-cone broadly rounded at apex, extending about two-thirds across prosternum, its length from posterior dorsal margin of head 142-154 μ , the maxillae forming a broad V; maxillary palpi about 56 long, segment i l/w: 16/16, ii: 40/12, terminal setae 24 μ ; labial palpi about 12 μ long, their thick terminal setae about 18, four prominent labial setae 48 μ .

Antennae as illustrated; ventral triangular specialized area not very well-defined on iv but the terminal sense-cone present; this area also present on vii; sense-cone formula: iii, 1-1; iv, 2-2; v, 1-1 (+1); vi, 1-0 (+1); vii, one cone in dorsal or somewhat lateral position; on some specimens the cones on iii slender, not very different from setae.

Thorax. Pronotum short, its width including coxae 3.0-3.5 its median dorsal length, its length contained 1.9-2.0 times in the head length; the anterior margin rather deeply concave, not straight as illustrated for the oedymorous male, not thickened internally in most females but slightly so in one of the paratypes; middorsal apodeme distinct; major setae all present, pointed, their length not very variable in the series before me.

Fore-wing of same width throughout, with one prominent dark vein extending about two-thirds of its length; sub-basal setae pointed, their lengths from base outwards 28-40, 32-56 and 52-68 μ ; fringe hairs close together, longest about 240 μ ; 7-9 duplicated cilia present. Hind-wings bear two distinct veins extending throughout their length. Legs without noteworthy features; fore-femora moderately enlarged; fore-tarsi bearing prominent teeth similar to those illustrated for the male, but shorter and somewhat more slender, usually recurved towards base, sometimes straight.

Abdomen: segments iii to vi with sterna distinctly in advance of their terga; tube as illustrated, somewhat constricted at apex, bearing distinct longitudinal ridges, shorter than head; head length 1.2-1.3 times tube length, which is 1.6-1.8 its width at base, and this is 2.4-2.6 the least width at apex. Major setae all pointed, the wing-retaining setae not sigmoid, scarcely bent mesad, their length on iii-vii varying from 36 to 60 μ ; S.2 (numbering from meson laterad) increases in length caudad on tergites ii to vii from 68 to 156 μ , and S.3 (the postero-angular) from 20 to 156 μ ; on segment viii, S.1 measures 48-64, S.2 and S.3 are small, S.4 is 100 to 120 μ long by 6 μ wide at base; on ix, S.2 and 3 are only 24-32 μ , S.1: 120-140, S.4: 112-120, S.5: 136-152 μ ; on tube the short setae 32-36, the long ones 116-120 μ ; on sternites ii-viii there is a transverse row of fine setae about 24 μ long, and four about 68-84 μ long near hind margin.

Measurements of holotype (deälated female macerated in NaOH) in μ , followed in parentheses by the ranges of this plus two deälated and one macropterous female paratypes: — Length (distended) 1800 (1740-1920); head length 210 (195-217), width across eyes 208 (203-216), greatest width 234 (224-234), least width at base 192 (165-192), postoculars 56, situated 12

from eyes, their interval 156; eyes: dorsal length 56 (52-56), ventral length 52 (48-52), dorsal width 52-56 (52-58), interval 100 (92-100), ventral interval 105 (105-108); ocelli: distance between anterior and posterior 28-32 (24-32), between posterior pair 64 (60-64), longitudinal/transverse diameter posterior 14/8 (14-16/8-12); pronotum length 108 (97-115), width including coxae 329 (307-330), setae: anterior marginal 28-36 (28-36), anterior angular 24 (16-24), midlateral 40-42 (28-42), epimeral 80 (76-92) posterior marginal 44-48 (44-50), posterior median marginal 12-20 (12-20), coxal 20-24 (18-24); mesothorax width 318 (300-345), metathorax width 329 (322-360); fore-wing (2 paratypes) length 675-750, width across scale 77, at middle 77, near apex 77-84; legs: length/width: fore femur 175 (161-175)/87-94 (77-94), tibia 147 (135-147)/42 (42-45), tarsus 70 (49-70)/36 (32-36), tooth 16 (10-17)/10 (10-12); hind femur 189 (175-210)/63 (52-63), tibia 189 (189-196)/38 (35-38), tarsus 63 (63-75)/31 (28-31); abdomen length 1185 (1140-1320), width 420 (405-435); tube (segment X only) length 161 (154-172), width basal collar 98 (90-98), width apex 38 (37-38), setae short 35 (32-35), long 133 (120-133).

Antennae: total length 390 (375-390).

Segm.	L.	W.	Segm.	L.	W.
i . . .	36 (36-40),	36 (36-40);	v . . .	56 (52-56),	32 (32).
ii . . .	48 (48) ,	32 (32-34);	vi . . .	56 (50-56),	30 (28-32).
iii . . .	64 (60-68),	28 (28-32);	vii . .	36 (32-36),	20 (20-22).
iv . . .	56 (56-60),	32 (32) ;	viii . .	22 (22-24),	12 (12).

Male (deälated). Length (distended) 1.3 to 1.7 mm. Colour like that of female except that fore tibiae are paler, brownish yellow, shaded brown at edges, especially on outer side. Of the ten males before me, nine are oedymorous and one is gynaeoid. In structure they agree very closely with the females, with the following exceptions: The gynaeoid male has the pronotum 98 long and 262 μ wide (including coxae) giving a ratio width/length of 2.7, as against 3.0-3.5 in the females; two of the oedymorous males have the pronotum 140-157 long by 308-315 wide, giving a ratio width/length of 2.0-2.2. The anterior margin of the pronotum is strongly thickened in eight of the oedymorous males, less prominently so in the ninth, which is less strongly oedymorous, and not thickened in the gynaeoid male; the thickening extends around on the sides about as far as the midlateral seta and is fused with the anterior end of the prominent median apodeme. The tube is relatively narrower at base in the males: the gynaeoid has the ratio tube width at base over width at apex 2.03, and the two oedymorous 2.2-2.3, as against 2.4-2.6 in the females. The two oedymorous males have the fore femora 238-247 long by 112-133 μ wide, as against 161-175 by 77-94 in the females and the gynaeoid male. In the arrangement and length of the major setae of the abdomen I find no differences of importance between the sexes.

The ventral emargination at the base of the tube is large and conspicuous in specimens macerated in NaOH, extending to about one-third of the tube

length from its base. The ninth sternite forms a well-defined scale below the base of the tube.

Measurements of allotype (deälated oedymorous male macerated in NaOH) in μ , followed in parentheses by the ranges of this plus one oedymorous and one gynaeoid male paratype: — Length (distended) 1657 (1305-1657); head length 196 (175-196), width across eyes 196 (185-196), greatest width 206 (196-206), least width at base 161 (157-161), postoculars 68 (64-72), situated 12 (10-16) from eyes, their interval 132 (132-148); eyes: dorsal length 56 (50-56), ventral length 44 (40-44), dorsal width 52-56 (52-56), interval 88 (84-92), ventral interval 92; ocelli: distance between anterior and posterior 32 (28-32), between posterior pair 56 (52-64); pronotum length 140 (98-157), width including coxae 308 (262-315), setae: anterior marginal 32 (28-40), anterior angular 32 (12-32), midlateral 44 (42-68), epimeral 72 (72-96), posterior marginal 64 (44-76) posterior median marginal 18-24 (18-24), coxal 26 (20-40); mesothorax width 285 (273-307), metathorax width 292 (273-300); legs, length/width: fore femur 238 (168-247)/112 (80-133), tibia 154 (126-165)/49 (38-49), tarsus 66 (56-66)/35 (28-35), tooth 28 (21-35)/20 (10-21); hind femur 189 (168-189)/56 (52-60), tibia 182 (168-195)/35 (35-38), tarsus 63 (63-67)/28 (28-31); abdomen length 1050 (870-1050), width 345 (329-397); tube (segment X only) length 154 (129-154), width at base 87 (77-87), width at apex 38 (38), setae short 35 (35-36), long 126 (120-140).

Antennae: total length 367 (337-375)

Segm.	L.	W.	Segm.	L.	W.
i . . .	40 (36-40),	36 (34-36);	v . . .	52 (48-52),	28 (28-32).
ii . . .	44 (40-44),	32 (28-32);	vi . . .	52 (48-56),	28 (28-30).
iii . . .	56 (52-60),	30 (28-32);	vii . .	32 (32-36),	22 (20-22).
iv . . .	52 (44-58),	30 (28-32);	viii . .	26 (24-26),	12 (12).

Material studied: 49 specimens: 6 macropterous, 33 deälated females, 9 oedymorous deälated males and one gynaeoid deälated male, collected by the writer, January to June, 1943-1949 in Zululand: Richards Bay, Hluhluwe, Dukuduku and east of the mouth of the Mkuzi river near St. Lucia Lake; about two-thirds of the specimens were taken in beating dead branches of the "Waterboom" *Syzygium cordatum* Hochst., a few in beating dead branches of miscellaneous other indigenous trees, and three on living branches of *S. cordatum* Hochst. and *Trichilia emetica* Vahl. The species is a fungusfeeder; large numbers of spores ranging from 16 to 40 μ in length can be seen in the bodies of some of the specimens.

This species agrees well with the characters of *Gastrothrips* as defined by Hood (especially in 1935: Rev. de Ent. Rio de Janeiro 5:160). It differs from most of the described species of the genus in that the eyes do not extend laterally to the margin of the cheeks, but *oeceticola* De Santis and *plumanni* Hood show a tendency to resemble *hoodi* in this respect. It belongs in the subdivision of the genus in which segment iii of the antennae bears two sense-

cones and segment iv four sense-cones, and in which the fore-tarsi of the females are armed. In the relative length and width of the head the new species comes close to *G. plaumanni* Hood from Brazil, but this differs *inter alia* in having segments iv-viii of the antennae nearly black, the fore tarsal tooth of the female smaller, the tube about 2.4 times as long as wide, and the epimeral setae about 112μ long. In the nearly cylindrical shape of segment vii of the antennae *hoodi* resembles *nigrisetis* Hood and *annulipes* Hood, but it differs from both *inter alia* in having the head wider than long, the tube relatively shorter and segment vi of the antennae paler than vii and viii.

G. hoodi resembles *Neosmerinthothrips ceylonicus* (Karny) in the shape of the head and in many of its dimensions; but *ceylonicus* differs in having segment vi of the antennae blackish brown, eyes that extend to the line of the cheeks, and segments vii and viii of the antennae broadly united.

I take pleasure in naming this first African representative of the genus for Professor J. D. Hood, as a small token of appreciation of his excellent published descriptions and illustrations of many of the known species of the genus.

***Arrhenothrips marieps* spec. nov. (Figs. 4, 5).**

Female. (macropterous). Length (distended) 1.7-1.9 mm.

Colour: light brown with the following exceptions: eyes very dark red, appearing black; antennae: i and v yellowish brown, paler than body, ii, iii and basal half of iv yellow, rest of iv yellow shaded with pale brown, vi-viii brown, about as dark as body; wings hyaline, their fringes grey; legs brown except all tarsi and fore-tarsal tooth which are yellow, and fore-tibiae yellow tinged with brown; major body setae pale, transparent to light grey.

Sculpture: Body, legs and antennae with distinct anastomosing lines, mainly transverse; these form fairly complete reticulations especially on head, parts of pronotum, mesonotum and first four abdominal tergites; on metanotum and sides of metathorax the lines and reticles are predominantly longitudinal; on lateral thirds of tergites ii to viii the lines of sculpture bear minute sharply-pointed asperities of which there are about 10 to 40 on each side of each sclerite; lines are shown on the figure of the antennae but not on that of the head and prothorax. Cheeks rather more roughened than shown on the drawing; inner basal surface of fore femora roughened by lines and small tubercles in the female, less distinctly so, and with lines only in the male.

Head small, about as long as wide, and about equal in length to the pronotum, usually widest at base, the width across eyes about 0.9 of the width at base; cheeks subparallel, diverging slightly towards base; eyes prominent, bulging slightly, coarsely but densely faceted, about one-third as long as head, their dorsal length 16-20 μ longer than ventral length, their dorsal width about three-quarters of their dorsal interval; ocelli on a slightly raised hump, but this less prominent than in the genotype, the anterior ocellus directed forward but not overhanging bases of antennae, distance between anterior and posterior 20-24, between posterior pair 32-36 μ ; postoculars 54-58 μ long,

capitate, situated $10-12\mu$ from eyes and $119-124\mu$ apart. Mouth-cone long, narrowed at apex, its length from posterior dorsal margin of head $210-217\mu$; maxillary palpus length $49-52$, segment i: $7-8$, ii: $42-44\mu$, labial palpus $28-35\mu$ long. Antennae as illustrated, $2.4-2.5$ times as long as the head; sense-cone formula: iii, $0-1$; iv, $1-2 (+1)$; v, $1-1 (+1)$; vi, $1-1 (+1)$; vii, 1 dorsal.

Thorax: prothorax broad and heavy, anterior margin of pronotum concave, posterior convex; length of pronotum approximately equal to head length, its width including coxae $1.9-2.2$ its own length; all major setae of pronotum present, capitate, approximately equal in length, except epimerals which are slightly longer than the rest. Fore-wings $600-735$ long, 63 wide across scale, $70-77$ at middle, 56 wide about 70μ from the tip, fringe about 280μ long, duplicated cilia absent, surface slightly roughened, sub-basal setae all capitate: length a: $44-56$, b: $56-60$, c: $52-60\mu$; hind wings very similar to anterior pair but lacking sub-basal setae. Legs: forefemora greatly enlarged, about 1.4 as long, and $0.7-0.8$ as wide as the head; fore-tibiae short, with a distinct tooth $8-14\mu$ long on inner side at apex; fore-tarsal tooth strong and sharp, $42-56$ long by $17-21\mu$ wide.

Abdomen slightly wider than thorax; sigmoid setae pointed, weak on ii and vii, 60μ , stronger on iii-vi, $88-96\mu$; setae on posterior angles of tergites i-vi all capitate: on i only one 52μ , on ii-vi two at each angle, increasing in length caudad, inner $72-100$, outer $36-76\mu$ long; on vii the inner is capitate, $96-128\mu$, the outer either pointed or capitate, $124-148\mu$ long; on viii two capitate setae at each angle, $80-112\mu$, on ix only S.1 and S.3 capitate, the lengths of S.1 to S.6 respectively $105-112$, $31-35$, $84-101$, $21-28$, $224-238$ and 14μ ; S.2, 4 and 6 are thin setae; sternites ii-viii each with a row of about 8 small punctures near anterior margin, a row of about 10 fine setae across the middle and 4 fine setae near hind margin, those on vii and viii about $72-116\mu$. Tube shorter than the head, the head being $1.2-1.3$ as long, tube length $1.4-1.6$ times its own width at base, sides converging evenly to apex, width at base $1.8-2.2$ width at apex; terminal setae: short about 30 , long about 161μ long.

Measurements of holotype (macropterous female macerated in NaOH) in μ , followed in parentheses by those of a similarly treated female paratype; where no figures appear in parentheses the measurements of the two females are identical: Length 1860 (1830); head length 165 (164), width across eyes 150 (147), width at base 175 (168), eyes dorsal length 60 (56), ventral 40 ($36-40$), dorsal interval 60 (64), ventral 80 (72); pronotum: length 180 (161),

EXPLANATIONS OF FIGURES

Gastrothrips hoodi spec. nov.

Fig. 1 — ♂, allotype, oedymorous, deälated, head and prothorax.

2 — ♀, paratype, deälated, end of abdomen.

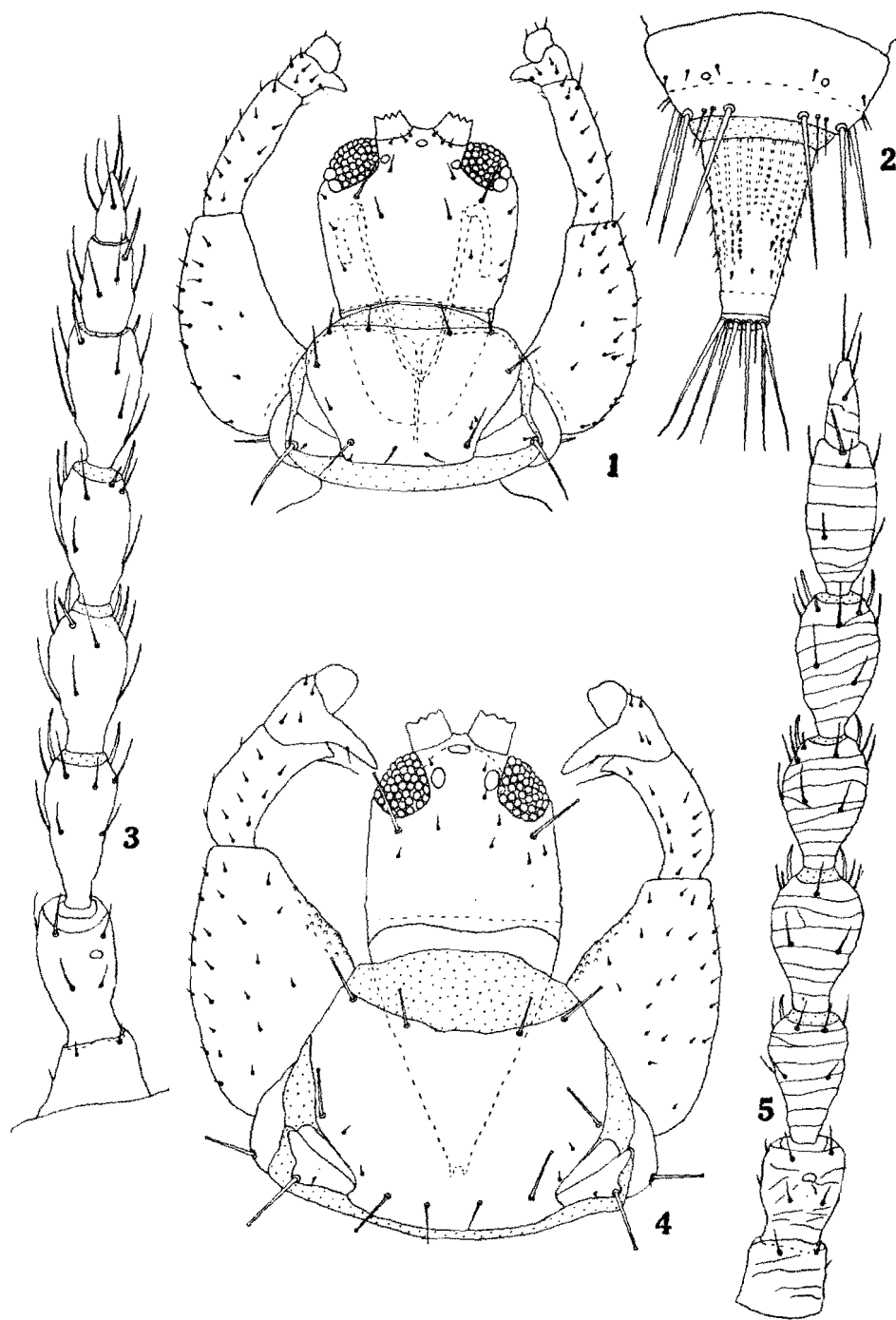
3 — ♀, paratype, deälated, right antenna.

Arrhenothrips marieps spec. nov.

Fig. 4 — ♀, holotype, head and prothorax.

5 — ♀, holotype, left antenna.

Figs. 1-5 S. Naude del. (Projection apparatus).



width including coxae 364 (357), setae: anterior marginals 36 (32-40), anterior angulars 44 (40-44), midlaterals 40 (44-48), epimerals 68 (58-60), posterior marginals 48 (44), posterior median marginals 36, coxals 64 (48-54); mesothorax width 375, capitate setae on mesonotum 32-36, metathorax width 360 (367); legs: length/width fore femur 238/140, tibia 112 (98)/52, tarsus 77/42, hind femur 195/75, tibia 165 (150)/45, tarsus 75/30; abdomen length 1185 (1155), width 390, tube length 140 (129), width at base 91 (80), at apex 42 (38).

Antennae: total length 405 (390)

Segm.	L.	W.	Segm.	L.	W.
i . . .	40 (44);	36	v . . .	52	; 36
ii . . .	40	; 36	vi . . .	56	; 34
iii . . .	52 (48);	36	vii . .	56	; 28
iv . . .	56	; 40	viii . .	36 (32);	14 (12)

Male (macropterous) Length (distended) 1.3-1.5 mm. Slightly smaller than the female but very similar in colour and structure. The fore-femora are less strongly enlarged: 1.0 to 1.1 as long and 0.6 to 0.7 as wide as the head; foretibial tooth about as in female, fore-tarsal tooth weaker, 20-21 μ long. Abdominal setae similar to those of female, but generally slightly shorter: inner capitate setae on ii-vi about 44-68, outer 20-52, on vii inner 80-96, outer 92-128 μ ; on ix only S.1 and S.3 capitate, lengths of S.1 to S.6: 88-100, 24-28, 48, 24, 144-168 and 24 μ .

On sternite viii the glandular area is about 40 long by 160 μ wide, the sternite measuring 68 by 188 μ ; its outline irregular, its surface unevenly and coarsely granular and alveolar, not transversely striate; in the genotype *ramakrishnae* Hood the glandular area is relatively larger, and its surface is finely granular and finely transversely striate; in *pacificus* Bianchi it is short and extends nearly across the whole width of the sternite.

Measurements of allotype (macropterous male) in μ , followed in parentheses by those of a male paratype (NaOH treated); where no figures appear in parentheses the measurements of the two males are identical: — Length 1485 (1245); head length 136 (140), width across eyes 129 (120), at base 147 (140); eyes dorsal length 48 (44), interval 56; ocelli distance between anterior and posterior 20 (16), between posterior pair 36 (32); postoculars 24 (40-44), distance from eyes 8, interval 112 (104); mouth-cone: length from posterior dorsal margin of head 175 (140); pronotum length 140 (128), width including coxae 285 (255), setae: anterior marginals 32-36 (28), anterior angulars 28-32 (20-32), midlaterals 32 (20), epimerals 36-48 (24-36), additional epimerals 32 (16), posterior marginals 44 (36), coxals 44 (40); mesothorax width 292 (270), mesonotal setae 24 (20-28), metathorax width 255; fore-wing (allotype only) length 495, width across scale 63, at middle 63, about 70 from tip width 42, fringe length 217, duplicated cilia 0, sub-basal setae, both males, all capitate, length a: 36 (32), b: 44 (32), c: 40 (36); legs: length/width fore femur 154 (140)/98 (84), tibia 84/42, its tooth 8/8,

tarsus 49 (56)/35 (32), its tooth 21 (20)/14; hind femur 147 (133)/56 (49), tibia 126/35, tarsus 70 (63)/28; abdomen length 900 (750), width 330 (300), tube length 116 (112), width at base 72 (68), at apex 36, "scale" extends beyond base of tube 48 (36), terminal long tube setae 146 (132).

Antennae: total length 277 (285)

Segm.	L.	W.	Segm.	L.	W.
i . . .	32	; 32	v . . .	40	; 34 (32)
ii . . .	36	; 32	vi . . .	40	; 30 (28)
iii . . .	36 (40);	32 (28)	vii . .	44	; 26
iv . . .	40 (36);	34 (32)	viii . .	28 (24);	12

Material studied: 7 females and 3 males, all macropterous, collected by the writer on Salique Forest Station, just below Mariepskop, near Acornhoek Station, Eastern Transvaal, 7th. July 1944, on *Pappea capensis* var. *Radlkoferi* Schinz. (determined by National Herbarium).

The absence of duplicated cilia on the fore-wing and the less pronounced ocellar hump might perhaps be considered grounds for the generic separation of *marieps* from *ramakrishnae* Hood, but I prefer to place it in *Arrhenothrips*, *inter alia* because its sense-cone formula agrees with that of the genotype. Although Hood stated in 1934 (Proc. Biol. Soc. Washington vol. 47 pp. 70-71) that the duplicated cilia are to be regarded as a generic character, he has subsequently described species in the genus *Gastrothrips* which have none and others which have many; it seems doubtful whether we can consistently apply this rule in the Phlaeothripidae.

This new species differs from the three known species of the genus in lacking duplicated cilia on the fore-wings, and in size; its distended length is about 1.2-1.9 mm, as against 2.5 to 3.0 in the other three, and the dimensions of the head, legs, tube etc. are correspondingly smaller; its fore-tibial teeth are more distinctly developed. In length of the antennal segments iii to v *marieps* comes nearest to *pacificus* Bianchi, but differs in having 3 sense-cones on segment iv, and only one on segment iii, in having all three basal wing setae expanded, and in the much larger glandular area on sternite viii of the abdomen of the male.

It is named for the Native chief *Marieps*, having been collected at the foot of Mariepskop, a delightful collecting area on the escarpment of the Drakensberg in the Eastern Transvaal.

ASCANIA gen. nov.

Head about 1.2-2.1 as long as wide, in the genotype strongly elevated on median dorsal line, similar in lateral and perspective aspects to the head of *Polyphemothrips woytkowskii* Hood (Rev. de Ent. Rio de Janeiro 7: p. 289 fig. 6), but with ocelli not on a hump projecting over bases of antennae; in the other species placed in this new genus, *africana* (Moulton), the head is not so distinctly elevated dorsally; head widest across eyes in macropterous forms, but widest at basal collar in apterous forms, cheeks subparallel, slightly constricted near eyes and near base; head about 1.5-2.8 as long as pronotum

and about 0.9-1.5 as long as tube; eyes prominent, bulging, their ventral length less than their dorsal length, more or less pear-shaped in lateral aspect; ocelli on a slightly raised hump in macropterous forms, the anterior one well back from the bases of the antennae, in apterous forms ocelli absent or small and tending to become rudimentary. Post-ocular setae prominent, close to eyes; in genotype second postoculars as thick and nearly as long as first pair, in *africana* weak; a prominent seta at each side of the anterior ocellus; post-ocellars also present but not very large; *mouth-cone* heavy, broadly rounded at apex; maxillae long, extending cephalad to near eyes, then converging and running caudad close together under median dorsal ridge of head, their tips concave and dentate. *Antennae* apparently seven-segmented, the seventh and eight segments closely united; sense-cone formula: iii, 1-1, or 0-1, or 0(+1)-1; iv, 1-1 (rarely 1-1(+1)); v, 1-1 (+1); vi, 1-0 (+1); vii, i dorsally; viii, 0-1; the sense cones short. Ventral differentiated area moderately well-defined on v and vi, usually not produced, but distinctly produced in two out of 13 males in the genotype.

Prothorax short, its width including coxae about 1.9-2.8 times the length of the pronotum; anterior margin of pronotum moderately concave, not thickened, posterior margin slightly convex, epimeral sutures distinct, median dorsal apodeme well developed in males, not visible in females, all major setae present, usually bluntly pointed. Wings comparatively short, not narrowed at middle, duplicated cilia present, sub-basal setae developed. Fore-femora greatly enlarged in oedymorous males, slightly so in gynaeoid males and females; fore-tarsi with strong broad teeth occupying their whole length, or with small teeth, in males, in females small teeth present which tend to disappear in some individuals.

Abdomen broad and heavy; tube sub-cylindrical, constricted at apex, thick-walled.

Genotype: *Ascania magnifica* spec. nov.

This new genus resembles *Polyphemothrips* Schmutz in the dorsal elevation of the head, but differs in having strong setae on each side of the anterior ocellus, and only 2 sense-cones on segment iv of the antenna instead of 4. It agrees with *Phaulothrips* Hood in sense-cone formula and in having prominent setae next to the anterior ocellus, but differs in having the pronotum not deeply emarginate and thickened on the anterior margin, and its mid-

EXPLANATIONS OF FIGURES

Ascania magnifica gen. et. spec. nov.

Fig. 6 — ♀, holotype, apterous, head and prothorax, ommatidia omitted from right eye to show lower margin.

7 — ♀, holotype, apterous, end of abdomen.

8 — ♂, paratype, apterous, oedymorous, left side of head.

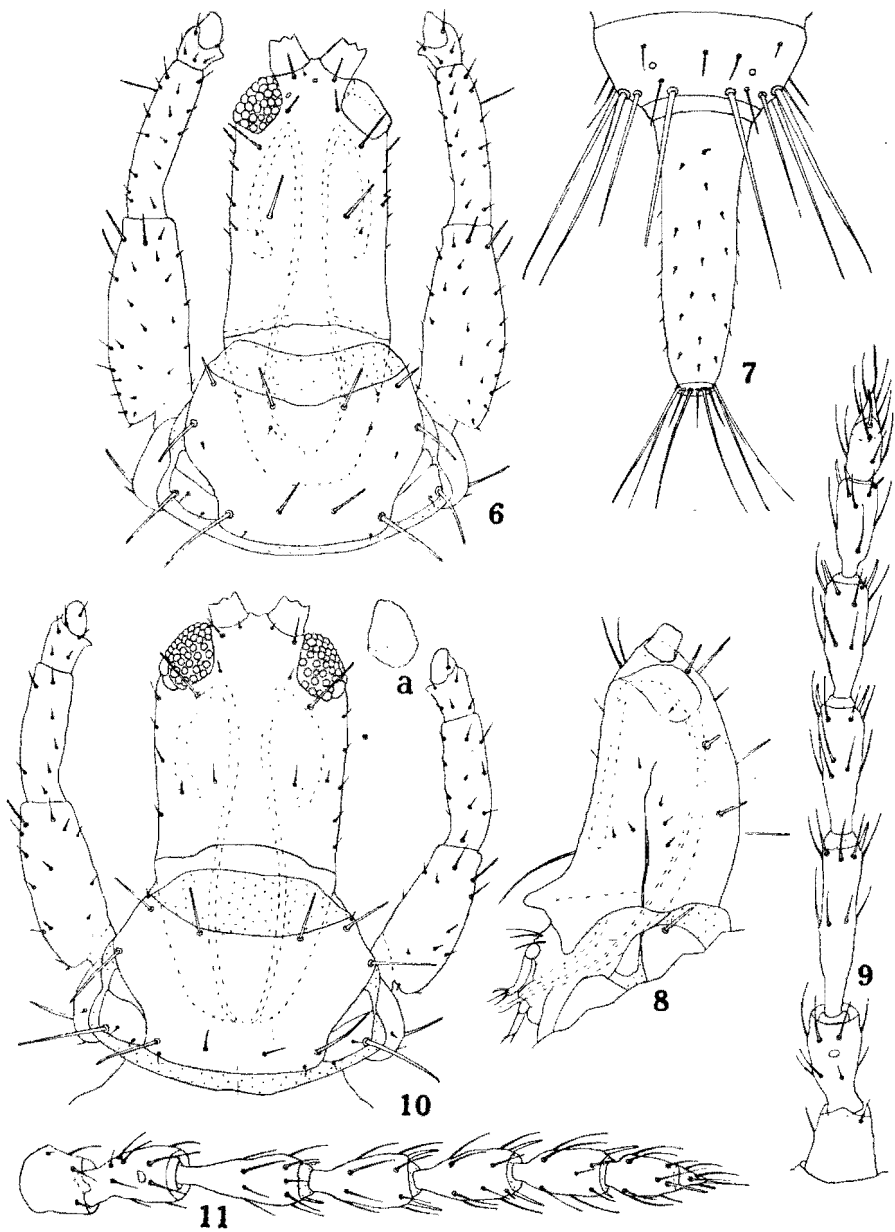
9 — ♀, paratype, apterous, right antenna.

Ascania africana (Moulton) comb. nov.

Fig. 10 — ♀, apterous, head and prothorax; a: right eye, upper and lower outline.

11 — ♀, apterous, right antenna.

Figs. 6-11 S. Naude del. (Projection apparatus).



lateral and anterior setae not minute. From *Adelothrips* Hood and *Docessis-sophothrips* Bagnall the new genus may be distinguished by having only two sense-cones on segment iv, and large setae next to the anterior ocellus. *Ascania* agrees with *Diceratothrips* Bagnall in a number of characters, such as the setae next to the anterior ocellus, and the close union of segments vii and viii of the antennae, but it differs in the dorsal elevation of the head, the prominently bulging eyes, the presence of only two sense-cones on segment iv, and the less distinct ventral prolongation of segments v and vi of the antennae.

***Ascania magnifica* spec. nov. (Figs 6-9).**

Female (apterous). Length (distended) 2.7-3.9 mm.

Colour: General colour brown to blackish brown with the following exceptions: eyes so deep red as to appear black; Antennae: i and vi-viii concolorous with body, ii yellow shaded mainly at sides with brown, iii and iv largely yellow, shaded more or less brown at apex, v yellow in basal one-third to one-half, rest brown; caudal half of metathorax and most of first abdominal segment white in life, the body wall being transparent and allowing the white internal tissues to become visible; tube yellowish to reddish orange except a very short transverse brown band at apical constriction; legs: all trochanters and all tarsi, except their apical dark spots, yellow or grey including fore-tarsal teeth, fore-tibiae slightly paler at both extremities or wholly brown; major setae pale, yellow to grey or pale brown.

Sculpturing: Body wall with lines of sculpture that form reticulations, especially on sloping sides of head in its posterior half, pronotum, metanotum and first two abdominal tergites; mesonotum lines mainly transverse, forming subreticulations; tergites iii-vii less distinctly reticulated the sculpturing weaker, but viii and ix like ii; tube also reticulated and in addition with minute granulations within the reticles. Legs less distinctly sculptured than body, not reticulated. The reticulation in this species is not nearly as heavy and prominent as that found in genera such as *Heliothrips*, the walls of the reticles being much thinner, but it is nevertheless quite distinct.

Head about 1.5-1.8 times as long as its greatest width which is at basal collar, about 1.9-2.4 times as long as pronotum and about 1.0-1.2 times as long as the tube; the width across eyes is 0.9-1.0 of the width at basal collar; the cheeks are sub-parallel, slightly constricted just behind eyes and again at about basal fourth and they bear 4-6 weak short setae of which those nearest eyes are 20-28 μ long; dorsal surface of head raised along median line, the sides sloping down like those of a roof; in lateral aspect the head is distinctly arched (on the dorsal surface): in two females measured lateral height across eyes 189-196, about middle 280, at base 315-325 μ , showing that the head is deep and heavy at the base; total lateral length 476-490, length of lateral suture 203-231 μ . Eyes bulging, projecting beyond line of cheeks, coarsely and closely faceted, two or more facets at latero-caudal angles larger than the others; their dorsal length contained 4.1-4.8 times in head length, ranging 80-98 μ against 44-63 μ for the ventral length; as shown on Fig. 6 the outline

of the eyes is angular and the ventral length is decidedly shorter than the dorsal, the posterior ventral margin strongly oblique; dorsal width of eyes 63-80, dorsal interval 84-120 μ . Postoculars 56-136 long, 108-148 apart and 16-28 μ from the eyes, bluntly pointed; a second pair situated 100-126 from first is 28-70 long, 94-133 μ apart, and about as heavy as the first pair. *Ocelli* small, rudimentary, sometimes one or more absent, distance between anterior and posterior 36-44, between posterior pair 64-92 μ . Setae at each side of anterior ocellus 24-49 μ long, postocellars somewhat thinner, 16-40 μ in length. *Mouth-cone* broadly rounded, its length from posterior dorsal margin of head 165-294 μ ; maxillary palpi: length/width segment i: 21/21, ii: 63/14 μ .

Antennae as illustrated, segments vii and viii forming a compact whole but the suture between them distinct; sense-cone formula as given above for the genus: on iii the inner cone is absent, very small, or about as large as the outer, but 0(+1)-1 appears to be the usual formula for this segment; the small cone on the outer side of viii is not shown on the drawing.

Prothorax: width including coxae about 2.3-2.7 times the length of the pronotum; major setae all present, blunt at tips or slightly knobbed, variable in length.

Mesonotum and metanotum strongly transverse, the latter bearing 3 pairs of blunt setae, one near median line, S.1: 32-70, two pairs near lateral margins S.2: 32-70, S.3: 24-70 μ long. Legs normal, fore-femora somewhat enlarged, foretarsal tooth small, scarcely recognizable as a tooth in some specimens.

Abdomen broad and heavy. Major setae bluntly pointed to slightly knobbed, sometimes sharply pointed, on i-vi; sigmoid setae not developed; on ii to vi the setae at posterior angles increase in length more or less regularly caudad, from about 70 μ to about 250 μ in length; on vii the two pairs at hind angles pointed, 224-294 μ long; on viii: S.3 blunt 119-210, S.4 blunt or pointed 84-210 μ ; on ix the measurements of 5 apterous females gave the following ranges in μ , the setae usually pointed, sometimes blunt; S.2, 5 and 6 are slender setae; S.1: 266-329; S.2: 35-49; S.3 variable, measured on 9 females: 63-252, but 100-150 seems to be the usual length; S.4: 273-350; S.5: 56-63; S.6: 21-35; S.7: 301-350.

Measurements of *holotype* (apterous female macerated in NaOH) in μ , followed in parentheses by the ranges of this plus four apterous female paratypes and two macropterous female paratypes: Length (distended) 3600 (3360-3600); head length 405 (352-450); width across eyes 241 (210-268), least width near eyes 231 (206-255), at basal collar 252 (217-287); pronotum length 210 (150-231), prothorax width including coxae 495 (406-540), setae: antero-angulars 40-52 (26-98), marginals 52-56 (20-70), midlaterals 52-68 (40-122), epimerals 84-92 (52-147), posterior marginals 96-100 (52-105), posterior median marginals 56 (20-56), coxals 48-56 (28-63); mesothorax width 480 (390-540), metathorax width 525 (390-555); legs length/width: fore-femur 300 (231-345)/120 (91-140); tibia 240 (210-255)/60 (49-70); tarsus 90 (77-105)/45 (42-56), its tooth 17 (7-17); hind femur 315 (255-375)/90 (70-91);

tibia 330 (270-360)/52 (42-56); tarsus 120 (105-120)/37 (35-42); abdomen length 2520, width 690 (510-720); tube length 420 (322-455), width basal collar 147 (112-175), in constriction at apex 56 (49-63); apical tube setae long 224 (175-224), short 42 (35-42), ventral pair of spindle-shaped pointed setae about 28 long.

Antennae: total length 637 (540-675)

Segm.	L.	W.	Segm.	L.	W.
i . . .	68 (52-72)	; 52 (48-63).	v . . .	100 (80-100);	40 (36-45).
ii . . .	68 (68-84)	; 44 (40-49).	vi . . .	80 (68-84)	; 36 (35-38).
iii . . .	132 (105-140);	38 (34-40).	vii + viii	72 (72-84)	; 32 (28-32).
iv . . .	104 (80-108)	; 40 (36-42).			

Female (macropterous) Length (distended) 3.3-3.6 mm. Agreeing closely in colour and structure with the apterous female, therefore the ranges of measurements of two females are included above with those of the apterous forms. Wings colourless, except scale of fore-wings which is grey and the area opposite it slightly shaded with irregular pale grey spots. No sigmoid setae on abdomen; the setae in the positions of wing-retainers are straight. The eyes are larger than in the apterous form, bulging more prominently; their dorsal length is contained 3.4-3.7 times in the head length; dorsal length 108-112, ventral 70-77 μ . The ocelli are larger than those of the apterous female; they have a longitudinal diameter of about 28 and a transverse one of 20-24 μ ; the posterior pair are contiguous with the inner margin of the eyes, 65-70 μ apart, and 35 μ from the anterior ocellus.

Wing measurements of three females give the following ranges in μ : fore-wing length 1155-1260, width across scale 120-127, at middle 135-150, near apex 150; subbasal setae all blunt a: 35-63, b: 49-72, c: 49-98; duplicated cilia: 15-21 present.

Male (apterous). Length (distended) 2.7-2.9 mm. Colour identical with that of the apterous female, except that the fore-tibiae have yellow areas at both extremities, each extending over about one-sixth of the length of the tibia. Structure very similar to that of apterous female, with the following differences: There is a pair of nose-like protuberances on the ventral aspect of the head, just cephalad of the base of the mouth-cone, one of which is shown on Fig. 8; in gynaeoid males these "noses" are smaller, but quite distinct.

The pronotum is relatively larger, especially in oedymorous males, therefore the head is only 1.4-1.7 times as long as the pronotum, and the width of prothorax including coxae is about 1.9-2.4 times length of pronotum. The fore-legs of oedymorous males are larger than those of the females, and the fore-tarsal teeth are more than twice as long. The ventral "scale" below the tube is well developed, extending about 56-70 μ caudad of base of tube.

Abdominal setae of male on i-vi similar to those of female, but more frequently pointed instead of blunt, and somewhat longer in most cases; on vii at hind angles inner blunt 182-196, outer 245-238 μ . On ix only three pairs of long setae instead of four as in female: on allotype S.1: 189 blunt; S.2: 49,

thin pointed; S.3: 161 blunt; S.4: 49, thin and pointed; S.5: 245 μ pointed.

Measurements of allotype (apterous male macerated in NaOH) in μ , followed in parentheses by the range of measurements of this plus two apterous male paratypes (also NaOH-treated). Length (distended) 2940 (2700-2940); head length 406 (345-406), width across eyes 227 (208-227), least width near eyes 206 (189-206), at basal collar 231 (217-241); first postoculars 84-98 (52-98), their interval 119 (105-119), their distance from eyes 21-28 (20-28), second pair 28-105 (28-105), their interval 98 (91-98), their distance from first pair 91-105 (77-105); eyes dorsal length 92 (84-94), ventral 48 (44-48), dorsal width 66 (60-68), dorsal interval 94 (80-94), ventral interval 105 (84-108); ocelli: anterior to posterior 40-44 (36-44), between posterior pair 80 (64-80); cheek spines near eye 20-24 (20-24); setae beside anterior ocellus 28-45 (24-45); postocellars 16-24 (16-24); ventral head setae: anterior 98 (70-98), interval 35 (28-35), posterior 98 (49-112), interval 49 (49-56); mouth-cone: length from posterior dorsal margin of head 180 (168-210), maxillary palpus length 84 (77-84), labial palpus length 42; pronotum length 266 (217-266), width prothorax including coxae 510 (462-510); pronotal setae: antero-angulars 44 (42-49), antero-marginals 44 (35-63), midlaterals 128 (63-128), epimerals 91-115 (84-115), posterior marginals 105-119 (49-119), median marginals 48 (35-77), coxals 52-60 (42-63); mesothorax width 495 (420-495), metathorax width 540 (465-540); legs: length/width: fore-femur 135 (360-435)/187 (140-187); tibia 240 (210-240)/60 (56-60); tarsus 90 (75-91)/60 (49-60), its tooth 45 (42-45)/22 (16-35); hind femur 300 (225-300)/82 (75-82); tibia 300 (277-300)/45 (45); tarsus 90 (90-105)/37 (35-37); abdomen length 1920 (1770-1920), width 675 (540-675); tube length 308 (294-310), width basal collar 119 (112-119), least apical width 49 (48-49); apical tube setae long 189 (189-203), short 49 (35-49), spindle-shaped ventral pair 28 (24-28).

Antennae: total length 570 (510-570).

Segm.	L.	W.	Segm.	L.	W.
i . . .	60 (56-60)	; 52 (48-52).	v . . .	84 (76-84);	36 (36).
ii . . .	68 (60-75)	; 40 (39-40).	vi . . .	72 (64-72);	32 (32-34).
iii . .	119-120 (101-120);	36 (32-36).	vii + viii	68 (64-68);	28 (26-28).
iv . . .	88-91 (77-91)	; 36 (35-36).			

Material studied: 34 apterous females, 4 macropterous females, 13 apterous males (11 oedymorous, one intermediate, one gynaeoid), taken by the writer in beating dead branches of *Acacia* and other indigenous trees, Pretoria and district, October-April, 1944-1953. The differences between this species and *africana* (Moulton) will be found at the end of the description of the latter, below.

***Ascania africana* (Moulton) comb. nov. (Figs. 10, 11)**

1949 *Adelothrips africanus* Moulton, Ann. and Mag. Nat. Hist. (12) ii: 492, fig. 5.

Seven females and two males taken at Fishhoek, Cape Peninsula, are

apparently conspecific with Moulton's *Adelothrips africanus*, based on one apterous female from Mossel Bay; his measurements fall within the range of measurements of my females and the colour notes also agree; his figure shows the head wider at base, but this may be due to coverglass pressure. I am giving supplementary notes and measurements of the female and describing the male. Although the head is distinctly less elevated dorsally and the tarsal teeth are smaller in both sexes, I have no doubt that this species is congeneric with *A. magnifica* spec. nov. described above.

Female (apterous) Length (distended) 2.1-2.6 mm. Colour: brown to blackish brown, without white at base of abdomen, eyes appearing black, apex of ii and basal fourth of iii of antennae brownish yellow, all tarsi light brown, tube orange except basal collar and one-ninth at apex which are dark brown; major setae transparent to yellow.

Sculpturing of same general pattern as that of *A. magnifica* but very much weaker; head reticulated close to basal collar only; pronotum smooth, abdominal tergites very weakly sculptured, except ix distinctly reticulated and tube like that of genotype.

Head about 1.2-1.4 as long as wide, the greatest width near eyes or sometimes at basal collar; 1.5-1.7 as long as pronotum, and 1.3-1.5 as long as tube; cheeks sub-parallel; head width across eyes about 0.9-1.0 the width at basal collar; eyes prominent, bulging, closely and coarsely faceted, with two larger facets at outer posterior angles, their dorsal length $28-35\mu$ greater than ventral length, but ventral posterior margin much less oblique than in genotype; ocelli absent; first pair of postoculars prominent, blunt, about as long as eyes, second pair much weaker. Mouth-cone broadly rounded at apex. Antennae as illustrated, sense-cone formula as given above for the genus.

Prothorax: width including coxae 2.2-2.3 times length of pronotum; pronotum feebly concave on anterior margin, hind margin moderately convex, major setae blunt or slightly knobbed. Metanotum $119-140\mu$ long; a pair of median setae $48-70\mu$ long, pointed, situated $21-30\mu$ from its anterior margin; two pairs at sides $12-20\mu$ in length. Legs normal, fore-femora only slightly enlarged; fore-tarsal teeth situated at apex on inner side, small, sometimes absent.

Abdomen: setae at posterior angles of i-vi blunt, inner about 105-112, outer $42-77\mu$; on vii inner blunt 112, outer pointed $182-196\mu$; viii: inner 91 outer 147μ both blunt; ix bears only three pairs of large setae instead of four pairs as in *A. magnifica*: S.1: 147-161, blunt, S.2: very thin 35-42; S.3. minute, pointed 20; S.4: 140-147 blunt; S.5 thin, pointed 42; S.6 pointed 182; S.7 and S.8 thin, 14-28 μ .

Tube length only about 1.9-2.3 times its width at basal collar, relatively shorter than that of genotype, but similar to it in shape and structure, distinctly constricted at apex; width at base 2.0-2.1 the least width at apex;

terminal setae similar to those of *magnifica*, ventral spindle-shaped pair also present.

Measurements of one apterous female in μ , followed in parentheses by those of another apterous female, given only where the two sets differ (both NaOH-treated): — Length 2070 (2400); head length 280 (259), width across eyes 206 (210), least width near eyes 217 (213), near basal collar 196 (199), on basal collar 199 (203); first postoculars length 87 (77), their interval 105 (115), distance from eyes 16–20, width 4; second postoculars length 24 (20), interval 68 (76), distance from first pair 77–91 (91–91), width 2 or less; setae laterad of position of anterior ocellus 32 (28), postocellars 16 (12); eyes dorsal length 77, ventral 42 (49), dorsal width 56, interval 94 (98), ventral interval 104 (98); cheek spines 14 (21); mouth-cone: length from posterior dorsal margin of head 182 (210), maxillary palpi length/width: — i: 17 (20)/14 (16); ii: 49 (52)/10 (12); labial palpi length 32 (35), labial setae 56; pronotum length 161, width including coxae 357 (375); setae: antero-angulars 42 (49), marginals 35 (52), midlaterals 70, epimerals 70 (80), posterior marginals 77 (56), median marginals 17 (20), coxals 42; mesothorax width 315 (367), metathorax width 330 (382); Legs: length/width fore femur 180 (182)/70(80), tibia 135 (161)/49, tarsus 67 (70)/38 (35), its tooth 3 (7); hind femur 195 (231)/56 (73), tibia 195 (231)/35 (42), tarsus 90 (84)/31 (35); abdomen length 1320 (1590), width 435 (510); tube length 182 (196), width on basal collar 94 (87), in apical constriction 44 (42), tube seate long 126, short 42, ventral spindle-shaped pair about 21μ long.

Antennae: total length 412 (435).

Segm.	L.	W.	Segm.	L.	W.
i . . .	48 (52);	40	v . . .	52 (60);	36.
ii . . .	56	: 38.	vi . . .	60	; 36.
iii . . .	77 (80);	36.	vii + viii	64	; 26 (28).
iv . . .	56 (64);	36 (40).			

Male (apterous, gynaeceoid). Length (distended) 1.9–2.0 mm. Colour like that of female except that about one-fifth of tube at apex is brown. Slightly smaller than female, but very similar in structure, with the following differences: — prothorax width including coxae 2.2–2.4 times length of pronotum; head length 1.5–1.6 times tube length; tube length 1.7–1.9 its width at base, which is 2.3–2.4 times its width at apex; tube slightly swollen at base, ventral “scale” extending $42\text{--}56\mu$ caudad from base of tube; abdominal setae: on ii–vi inner about $70\text{--}84\mu$; on vii outer blunt or pointed $133\text{--}147\mu$; viii: 63 and 105μ both blunt; ix has three pairs of large setae: — S.1: $119\text{--}126$ blunt; S.2 $28\text{--}35$ pointed; S.3 absent; S.4: $116\text{--}119$ narrowly capitate; S.5. thin, pointed $35\text{--}42$; S.6: 140 pointed; S.7 thin pointed 14μ .

Measurements of allotype (apterous male macerated in NaOH) in μ , followed in parentheses by those of the paratype male (also NaOH-treated), these given only where the two sets differ: — Length 2010 (1920); head length 238, width across eyes 189 (185), least width near eyes 182 (185),

near basal collar 182 (175), on basal collar 182 (175); first postoculars length 48 (64), their interval 101 (98), distance from eyes 16, width about 3-4; second postoculars length 14, interval 60 (66), distance from first pair 76-80 (70-84), width 2 or less; setae laterad of position of anterior ocellus 28 (36); postocellars 8 (14); eyes dorsal length 64 (63), ventral 40 (42), dorsal width 56 (50-57), interval 77 (78), ventral interval 84; cheek spines 8-12 (16); mouth-cone: length from posterior dorsal margin of head 175, maxillary palpi length/width: — i: 14/14; ii: 42/7; labial palpi length 28 (35), labial setae 42 (49); pronotum length 161 (140), width including coxae 352 (329), setae: antero-angulars 49, marginals 35, midlaterals 49 (56), epimerals 59 (56), posterior marginals 70 (77), median marginals 14, coxals 35 (42); mesothorax width 322 (307), metathorax width 337 (307); legs: length/width fore femur 161 (175)/70, tibia 140 (133)/42, tarsus 70 (63)/35, its tooth 7/7; hind femur 210 (189)/63 (56), tibia 217 (189)/35, tarsus 77/35 (28); abdomen length 1275 (1245), width 420 (382); tube length 161 (147), width on basal collar 84 (87), in apical constriction 35 (38), tube setae long 119 (108), short 49 (48), ventral spindle shaped pair 16 (20).

Antennae: total length 405.

Segm.	L.	W.	Segm.	L.	W.
i . . .	40	; 40.	v . . .	56	; 32.
ii . . .	56 (52)	; 36 (34).	vi . . .	56 (52)	; 32 (28).
iii . . .	72	; 32	vii + viii	60 (56)	; 24.
iv . . .	56	; 36 (32).			

Material studied: 7 females and 2 males, all apterous, taken from dead branches (carrying dead leaves) of *Leucospermum conocarpodendrum* (L) Buek., on a mountain slope on the north side of Fishhoek, Cape Peninsula, by the writer on 3rd. April 1953.

The main differences between this species and *A. magnifica* may be tabulated as follows:

size:	<i>magnifica</i> spec. nov. larger, about 2.7-3.9 mm.	<i>africana</i> (Moulton) comb. nov. smaller, 1.9-2.6 mm.
colour:	white band at base of abdomen	no white band
	3rd. and 4th. antennal largely yellow	only basal fourth of 3rd. yellow
ix of abdomen:	4 pairs large setae in female; 3 pairs in male	3 pairs in both sexes
head:	strongly elevated dorsally	weakly elevated